TWO STRUCTURES FOR ENGLISH RESTRICTIVE RELATIVE CLAUSES*

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The analysis of English relative clauses is the subject of a long-standing debate. (Lees 1960, 1961, Chomsky 1965, Kuroda 1968, Schachter 1973, Vergnaud 1974, Heim 1987, Kayne 1994, Borsley 1997, Grosu and Landman 1998, Hackl and Nissenbaum 1998, . . .) Consider the example (1): The question is whether the head of the relative clause—*tigers* in (1)—stands in a transformational relationship to the relative clause internal argument position occupied by a trace. Though some of the literature also views the determiner *the* is part of the head, really the central question of the debate is the transformational relation of head and relative clause internal trace.

(1) The $\underbrace{\text{tigers}}_{\text{head (NP)}}$ $\underbrace{\text{that I saw } t \text{ at Ueno}}_{\text{relative clause}}$ were cute.

Both possible position—that there's a transformational relationship and that there isn't—received support. The later negative position is what want to call following Carlson (1977) the *Matching Hypothesis*, which claims that there's no direct transformational relationship between the head NP and the relative clause internal trace position. Instead an empty operator raises from the relative clause internal position to the initial position of the relative clause, and mediates the semantic relationship between the relative clause internal position and the head. The other possible position—that there's a transformational relationship—together with the generally held assumption that Movement is the only transformational rule amounts to the *Raising Hypothesis*: The head NP (or sometimes DP) starts out DP starts out in the relative clause internal position, and moves to its surface position.

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A lot of recent work on the syntax and semantics of movement relationships has focussed on properties of reconstruction (Chomsky 1993, Fox 1998, 1999, Freidin 1986, Heycock 1995, Huang 1993, Lebeaux 1988, 1992, 1998, Sauerland 1998 Takano 1995, and others). This has led to a better understanding of the properties of movement and a refined concept of reconstruction. This paper attempts to apply these diagnostics to relative clauses, in the hope of shedding new light on the question of the transformational relationship.

I argue for three results. The first one is in a way a resurrection of Carlson's (1977) claim that both raising and matching relative clauses exist in English. However, not only are my tests leading to this conclusion different, but also the distinction is drawn along different lines. The second result I argue for is that even matching relatives have a complex internal head, which argues for some transformational relationship between the trace position and the head. The third proposal is that in fact the internal position of a matching relative is occupied by a silent copy of the external head which is elided by an obligatory ellipsis process. I show that this is exactly what has been proposed for comparatives (Bresnan 1973, 1975, Lechner 1999).

1 Matching and Raising Relatives

In this section, I aim to show that the reconstruction behavior of the relative clause head argues for Carlson's (1977) claim that relative clauses are ambiguous between raising and matching relative clauses. The basic contrast leading to this claim is that the head doesn't show Condition C reconstruction, but allows reconstruction for variable binding (Munn 1994).

(2) a. The relative of John$_i$ that he$_i$ likes lives far away.
b. The relative of his$_i$ that everybody$_i$ likes lives far away.

1.1 Reconstruction in Wh-Movement

Before addressing reconstruction properties in relative clauses, this section summarizes some of the literature on reconstruction in *wh*-movement. The goal is demonstrate that reconstruction here is a well-described phenomenon (Freidin 1986, Heycock 1995, Huang 1993, Lebeaux 1988, 1992, 1998, Takano 1995) and that it can be understood quite well on the basis of the copy theory of movement (Chomsky 1993, Fox 1998, 1999, Sauerland 1998). This literature summary is by no means exhaustive, but rather focusses selectively on the phenomena relevant for the later sections.

One property of *wh*-movement that has been discovered is that reconstruction of the moved NP with its arguments is obligatory. Only the determiner and modifiers adjoined to the NP need not reconstruct. This is demonstrated by (3) and (4). In (3a), the R-expression *John* is part of the argument of *argument* and therefore induces a Condition C violation with the pronominal *he* that c-commands the trace position of *wh*-movement. In (3b), the relative clause containing *John* is a modifier to the noun *argument*, and therefore doesn't

induce a Condition C violation in the trace position.

(3) a. *[Which argument that John$_i$ was wrong]$_j$ did he$_i$ accept t_j in the end?
b. [Which argument that John$_i$ had criticized]$_j$ did he$_i$ accept t_j in the end?

The contrast in (4) makes the same point, but shows more pointedly that only the position of the R-expression *John* in the *wh*-phrase determines whether it triggers a Condition C violation or not.

(4) a. *[Which argument of John$_i$'s that Mary had criticized] did he$_i$ omit t_j in the final version?
b. [Which argument of Mary$_i$'s that John had criticized] did he$_i$ omit t_j in the final version?

Taking Condition C as a diagnostic for the position of R-expression at LF, the LF-structure of a *wh*-chain as revealed by reconstruction is sketched in (5). The interrogative determiner and adjoined modifiers occupy the head position of the *wh*-chain, while the NP-complement of the *wh*-determiner excluding all modifiers must occupy the lowest *wh*-trace position.

(5) $\underbrace{\text{Wh-Determiner (adjoined modifiers)}}_{\text{Spec of CP}} \ldots \underbrace{\text{NP-part}}_{\text{trace}}$

A second factor has been shown to affect the LF-position of modifiers. Namely, a bound variable pronoun in the *wh*-moved constituent forces reconstruction to a position where the bound variable is c-commanded by its antecedent. So in (6), the relative clause modifying *paper* must be represented in the trace position t_i at LF, where it is c-commanded by *every student*.

(6) [Which paper that he$_j$ wrote]$_i$ did every student$_j$ plan to revise t_i?

The evidence for the reconstruction of bound variables is Lebeaux's (1992) observation that Variable Binding and Condition C Reconstruction go hand-in-hand. Hence, a violation of Condition C is observed in (7): Binding of the pronoun *he*$_k$ requires representation of the constituent containing *he* in the trace position t_i. But in that position, the R-expression is c-commanded by *she*, and therefore Condition C blocks coreference of these two expressions.

(7) *[Which paper that he$_k$ gave to Mary$_j$]$_i$ did she$_j$ think that every student$_i$ would like t_i?

1.2 Reconstruction of Relative Clause Internal Material

In the domain of relative clauses, material that is pied-piped internal to the relative clause behaves exactly like the moved material in *wh*-questions. (8) and (9) show that this material

exhibits an argument/adjunct distinction just like *wh*-movement.

Consider first (8). The difference between (8a) and (8b) is that in (8a) the R-expression *John* is part of a prepositional phrase modifying the phrase *whose picture*, while in (8b) the R-expression is part of an argument of the same phrase. The contrast in (8) therefore fits the same description that has been given for Condition C effects in *wh*-movement in the previous subsection.

(8) a. There's a singer whose picture in John$_i$'s office he$_i$'s very proud of. (Safir 1998:(34b))
b. *There's a singer whose picture of John$_i$'s office he$_i$'s very proud of.

The contrast in (9) shows essentially the same as the one in (8) under the assumption the the prenominal genitive in (9a) is a modifier of the noun *description*.

(9) a. Max is a prince John$_i$'s description of whom he$_i$ varies when spies are around. (Safir 1998:(34c))
b. *Max is a prince whose description of John he$_i$ varies when spies are around.

1.3 Reconstruction of the Relative Clause Head

The head of the relative clause displays the ambiguous behavior already illustrated by (2) above: With respect to Condition C, reconstruction effects seem to be absent, but with other tests for reconstruction show that it must be possible.

For Condition C, it's well known that an R-expression in the head of a relative clause doesn't trigger a Condition C effect in the relative clause internal trace position, even when it's an argument as in (10).

(10) The relative of John$_i$ that he$_i$ likes *t* lives far away.

The following contrasts establish that there's is difference between the head of a relative clause and *wh*-movement with respect to Condition C. The examples (11a), (12a), and (13a) all show that material of the head of a relative clause doesn't trigger a Condition C effect in the trace position. The corresponding examples in (11b), (12b), and (13b) establish that, for *wh*-movement, a Condition C effect is observed under the same circumstances.

(11) a. Which is the picture of John$_i$ that he$_i$ likes?
b. *Which picture of John$_i$ does he$_i$ like?

(12) a. The pictures of Marsden$_i$ which he$_i$ displays prominently are generally the attractive ones.(Safir 1998:(38a))
b. *Which pictures of Marsden$_i$ does he$_i$ display prominently.

(13) a. I have a report on Bob's division he won't like.(Merchant 1998:fn.1)
b. *Which report on Bob$_i$'s division will he$_i$ not like.

There is also a difference between the relative clause head and material pied-piped internal to the relative clause with respect to Condition C reconstruction. This is shown by (14): (14a) is a case where material pied-piped internal to the relative clause triggers Condition C. (14b) shows that the an R-expression in relative clause head doesn't trigger Condition C.

(14) a. *I respect any writer whose depiction of John$_i$ he$_i$'ll object to. (Safir 1998:34a)
b. I respect any depiction of John$_i$ he$_i$'ll object to.

The facts from Condition C reconstruction and, in particular, the difference between the relative clause head on the one hand and *wh*-phrases and the relative clause internal material on the other argues for the matching analysis. In other word's, it argues that there's no direct movement relationship between the relative clause internal trace position and the head a relative clause.

However, in other cases the relative clause head must be interpreted only in an internal position. One such case is binding, as already mentioned in (2). (15a) and (15b) are two examples from the literature, (15c) shows that also a bound variable pronoun in the relative clause head can be bound by a quantifier in the relative clause.

(15) a. The interest in each other$_i$ that John and Mary$_i$ showed *t* was fleeting. (Schachter 1973:43a)
b. Une photo de lui$_i$ que Jean$_i$ avait donnée à Marie a été retrouvée
A photo of him that John has given to Mary has been found again
hier. (Vergnaud 1974:256)
yesterday
c. The book on her$_i$ desk John found out every professor$_i$ liked best *t* concerned model theory.

A second kind of evidence in favor of reconstruction of the relative clause head comes from idiom chunk interpretation. As was apparently originally observed by Brame (1968), the relative clause head can be part of an idiom chunk with material surrounding the trace. In (16), this is exemplified using the idiom chunks *make headway* and *take pictures*.

(16) a. The headway John made proved insufficient.
b. All the pictures John took showed the baby.

This argument based on idiom chunks is in fact more decisive than the one based on binding: For binding, for example Sternefeld (1998) and Sharvit (1999) develop a semantic mechanism that can bring about binding relationships in the absence of c-command. However, the particular mechanism proposed could not bring about idiom chunk interpretation and, I suspect, for principled reasons could not since the parts of the idiom chunk can't be assigned an interpretation independent of each other which is then brought together by a

semantic mechanism.

A third case where the relative clause head seems to be interpreted internally is scope interpretation in (17). Namely, it seems that the relative clause head can take scope in a position internal to the relative clause.

(17) a. No linguist would read the many books Gina will need for vet school. (need ≫ many)
b. Mary shouldn't even have the few drinks that she can take. (can ≫ few)

We're therefore led to the conclusion that in some cases the head must interpreted internal to the relative clause, but not in other cases. A potential *Matching Structure* is illustrated in (18). Internal to the relative clause an empty operator undergoes movement, and creates semantically an open λ-predicate. This is then intersected with the predicate the head expresses.

(18) a. the picture of John$_i$ he$_i$ likes
b. the picture of John$_i$ λx he$_i$ likes t_x *(matching)*

A potential *Raising Structure* is illustrated in (19). Here, the head of the relative clause itself starts out in the relative clause internal position. It moves to the head position, where it also is pronounced. At LF, however, the head is interpreted only in the relative clause internal position, where the variable expressed by *himself* is bound.

(19) a. the picture of himself everybody likes
b. the *Op* everybody$_i$ likes [picture of himself$_i$] *(raising)*

The interpretation of a structure like (19) is by no means straightforward. See Sauerland (1998) for one proposal based on the notion of choice function which has been successfully employed for the interpretation of interrogatives that contain bound variables (Engdahl 1980).

1.4 Condition C with Raising Relatives

In the previous section I argued that both the raising and matching analysis are required in the analysis of English relative clauses. To explain the obviation of Condition C, I invoked the matching analysis, while I invoked the raising analysis to explain the possibility of binding. The claimed structural ambiguity predicts that Condition C effects should be observed when the raising analysis is forced. This section demonstrates that this prediction is borne out. I show that each of the three factors which I claimed to require the raising analysis induces a Condition C violation when the relevant test is constructed.

First consider variable binding. In all examples in (20) and (21), variable binding forces the raising analysis, because the pronoun *her* is bound by the quantifier *every girl* only in the relative clause internal position. In the examples (20a) and (21a) the relative

clause head contain an R-expression in addition to the bound variable. Furthermore, a pronoun c-commands the trace position in the relative clause. The fact that this pronoun cannot be coreferent with the R-expression in the relative clause head, I claim is due to a violation of Condition C. This is corroborated by the absence of such an effect in (20b) and (21b), where R-expression and pronominal are interchanged.

(20) a. *The letters by John$_j$ to her$_i$ that he$_j$ told every girl$_i$ to burn were published.
b. The letter by him$_j$ to her$_i$ that John$_j$ told every girl$_i$ to burn were published.

(21) a. *A review of John$_i$'s debate with her$_j$ that he$_i$ wanted every senator$_j$ to read landed in the garbage instead.
b. A review of his$_i$'s debate with her$_j$ that John$_i$ wanted every senator$_j$ to read landed in the garbage instead.

This result essentially replicates Lebeaux's (1992) observation in (7) above.

The use of idioms is another way to enforce the raising analysis. As Munn (1994) already observes, the prediction that Condition C effects reemerge is borne out. This shown by the pairs in (22) and (23). In (22), the idiom chunk *take picture* requires the noun pictures to be interpreted in the trace position inside of the relative clause. Therefore, the Condition C violation triggered by the R-expression *Bill* in this position in (22a) is expected. Again, (22b) shows that coreference is possible when R-expression and pronominal element are exchanged.

(22) a. *the picture of Bill$_i$ that he$_i$ took (Munn 1994:(15c))
b. the picture of himself$_i$ that Bill$_i$ took

The contrast in (23) is analogous to that in (22). Again, material in the head triggers a violation of Condition C in (23a) confirming the claim that, on the raising analysis, Condition C violations are observed in relative clauses. (23b) provides the relevant contrast, when R-expression and pronoun are exchanged.

(23) a. *The headway on Mary's project she had made pleased the boss.
b. The headway on her project Mary had made pleased the boss.

The third way of forcing the raising analysis was the narrow scope interpretation of material in the relative clause head. In (24), I show that narrow scope of *many* in (24a) and *few* in (24b) seems to cause a Condition C effect in the expected fashion.

(24) a. *The many books for Gina$_i$'s vet school that she$_i$ needs will be expensive. (need $\gg$ many)
b. *The few coins from Bill$_i$'s pocket he$_i$ could spare weren't enough for all the needy. (could $\gg$ few)

Taken together the facts in this section lend strong support to the claimed structural ambiguity of relative clauses. We have seen that the obviation of Condition C is not observed once the raising analysis of a relative clause is forced by either binding, idiom interpretation, or scope. Therefore, the absence of Condition C effects in other relative clauses cannot be explained based on the raising analysis. Therefore, both analyses—the raising and the matching analysis—are needed. For the rest of the paper, I say nothing more about the raising analysis. For the matching analysis, however, I argue that the analysis proposed above needs to be modified.

2 The Internal Head in Matching Relatives

The straightforward account of Matching Relatives, already mentioned in (18), would be to assume that an empty λ-operator binds the trace position as sketched in (25b).

(25) a. the picture of John$_i$ he$_i$ likes
b. the picture of John$_i$ Op_x he$_i$ likes t_x *(matching)*

In this section, I present two arguments that there's a more complex representation of the external head in the internal position.

2.1 Double Headed ACD

The first argument draws on facts and an analysis of Sauerland (1998) concerning a particular English construction, which I call here *Double Headed Antecedent Contained Deletion*, or shorter *Double Headed ACD*. I present the argument here in a abbreviated form.

First recall that ACD is a form of VP-ellipsis inside of a relative clause where the relative clause head seems to be part of the antecedent VP. As illustrated by (26), the structure of ACD is such that the apparent antecedent of the elided VP contains the elided VP itself.

(26) Polly visited every town Eric did ⟨visit t⟩.
(antecedent = Polly visited every town Eric did ⟨visit t⟩; elided VP = ⟨visit t⟩)

Sag (1976), Larson and May (1990), and Kennedy (1997a) strongly argue that ACD is resolved by invisible A-bar movement—quantifier raising—of a DP containing the relative clause. Therefore, (27) is the LF-representation of (26).

(27) [every town, Op_y Eric visited [y]] λx Polly visited [x]
(elided VP = visited [y]; antecedent = visited [x])

In standard examples of ACD like (26) the head of the ACD-relative is also the DP that undergoes quantifier raising. However, this identity of the two DPs isn't a necessary feature of the construction. If the two DPs are different, I call this construction *Double*

Headed ACD. Double headed ACD is in many cases ungrammatical (Kennedy 1994), as illustrated by (28a). However, (28b) is grammatical. The difference between (28a) and (28b) is that, in (28a), the head nouns of the two DPs involved in double headed ACD, the head of the relative clause and the DP that undergoes quantifier raising, are different, while they're identical in (28b). In Sauerland (1998), I show that more generally double headed ACD is acceptable if the lowest NP-segments of the two DPs involved are identical (or at least very similar), but not otherwise. Of course, single headed ACD of the type illustrated by (26) always satisfies this identity requirement, because the head of the relative clause is identical to the DP that undergoes quantifier raising.

(28) a. *Polly visited every town that's near the lake Eric did ⟨visit t⟩. (Kennedy 1994)
b. Polly visited every town that's near the town Eric did ⟨visit t⟩.

The contrast (28) follows from the structure for ACD proposed in Merchant (1998) and Sauerland (1998), and sketched in (29) for (28a) and the general identity requirement on VP-ellipsis. Consider the two trace positions in (29), the trace internal to the relative clause is marked as [y, lake] and the trace left by quantifier raising is marked as [x, town]. Since one of the traces is part of the elided VP while the other is part of the antecedent, we expect that the identity requirement on ellipsis allows ellipsis in (29) if and only if the content of the two trace positions is identical. If both trace positions have the content shown, this predicts ellipsis to be possible only when the content of the two traces is identical.

(29) *every [λx x is near the lake [λy Eric visited [y, lake]]] λxPolly visited [x, town].

But, the prediction only arises if the relative clause internal trace position has as its content the material of the relative clause head. If the relative clause internal position could be contentless in externally headed relatives, the examples in (28) should all have the same status. In this way the paradigm in (28) argues for the assumption that some material of the relative clause head is represented in the relative clause internal trace position even in the case of matching relative clauses.

I should note that the identity requirement found in double headed ACD is not found in all cases of an elided VP containing a trace the binders of the trace and the corresponding trace in the antecedent of the elided phrase. Both examples in (30) show this. In Sauerland (1998), I argue that independent factors, in particular focus, obviate the identity requirement in such cases.

(30) a. I know which cities Mary visited, but I have no idea which lakes she did.
b. The cities Mary visited are near the lakes Bill did.

2.2 Crossover

The second argument is based on the contrast in (31) from Safir (1998). He observes that a quantifier in the head of the relative can only bind a relative clause internal pronoun if

the pronoun is c-commanded by the RC-internal trace in (31). So, the quantifier *anyone* in (31a) cannot bind the pronoun *he* in (31a), but in (31b) the binding relation is possible.

(31) a. *Pictures of anyone$_i$ which he$_i$ displays prominently are likely to be attractive ones.
b. Picture of anyone$_i$ that put him$_i$ in a good light are likely to be attractive ones.

Example (32) corroborates Safir's empirical claim. In (32), the quantifier *every boy* occurs in the relative clause head. It cannot bind the pronoun *he* in (32a) where the relative clause internal trace occupies the object position and therefore doesn't c-command the pronoun. In (32b), however, the relative clause internal trace occupies the subject position and therefore binding of the pronoun is possible.

(32) a. *Mary exhibited the picture of every boy$_i$ that he$_i$/his$_i$ sister brought.
b. Mary exhibited the picture of every boy$_i$ that was brought by him$_i$/his$_i$ sister.

The contrast in (33) shows that even when a matching relative is forced by Condition C the Safir's contrast is observed:

(33) a. *The Times will generally publish pictures of any woman$_i$ visiting Clinton$_j$ that he$_j$ told her$_i$ about.
b. The Times will generally publish picture of any woman$_i$ visiting Clinton$_j$ that he$_j$ thinks will offend her$_i$.

As Safir also notes, the matching analysis with an empty internal head doesn't predict these contrasts. Consider the representation in (34) for (31a). This representation takes into account that the quantifier *anyone* must be moved out of the relative clause head and adjoined to the clausal level to be interpretable. This has been suggested for inverse linking by May (1977) and recent work of myself has found empirical support for this assumption (Sauerland 1999).

(34) *anyone$_x$ $\left[$pictures of t_x which$_y$ he$_x$ displays prominently t$_y$$\right]$ are likely to be attractive ones.

In the representation (34), the quantifier *anyone* c-commands the pronoun and therefore binding should in principle be possible. The grammaticality of (34) is predicted to be comparable to other cases of inverse linking where the inversely linked quantifier binds into the matrix clause. But in fact, (31a) is worse.

The contrast in (34) is, of course, reminiscent of similar contrasts with *wh*-movement, as Safir also observes who uses the term secondary strong crossover for these constructions. (35) shows that the *wh*-phrase *whom* which is fronted along with the *wh*-phrase it's part of to the the sentence initial position cannot bind a pronoun that c-commands the trace of the bigger *wh*-phrase in (35a), while it can bind the pronoun in (35b).

(35) a. *Which picture of whom$_i$ does he$_i$ display prominently?
b. Which picture of whom$_i$ puts him$_i$ in a good light.

Assuming the copy theory of movement, the ungrammaticality of (35a) is a strong crossover effect or equivalently following Chomsky (1981) a Condition C effect: In the representation (36) for (35a), the unbound *wh*-trace t_y is c-commanded by he$_y$.

(36) whom λy which λx does he$_y$ display [x, picture of t_y] prominently

It's desirable to reduce the ungrammaticality of (31a) to Condition C in the same as was done for (35a). But, this requires the extension of the copy theory to matching relative clauses in some way. If we copy the external head of the relative clause into the internal position, the same explanation is available for Safir's contrast.

(37) *anyone$_x$ $\Big[$pictures of t_x which$_y$ he$_x$ displays
prominently [y, pictures of t_x]$\Big]$ are likely to be attractive ones.

In (37), he$_x$ c-commands the QR-trace t_x in the relative clause. Therefore, (37) violates Condition C just like (36) does.

However, this solution seems to undermine the motivation for the matching analysis. The observation that led me to propose that the matching analysis is available for relative clauses in addition to the raising analysis was the absence of Condition C effects. If we now adopt the explanation of the ungrammaticality of (31a) as a Condition C violation based on the representation (37), we *prima facie* predict Condition C violations to occur more generally.

In the next section, I show how this paradox is resolved. I'll argue that the relationship between the internal and external copy of the relative clause head in representation (37) actually allows slight modifications, which obviate Condition C exactly in the cases where it's in fact obviated.

3 Relative Deletion

3.1 The Proposal

The relationship of head and the relative clause internal trace position cannot be a direct movement relationship, because that wouldn't distinguish matching from raising relative clauses. I therefore propose that the material in the trace position is related to the head not by movement, but by ellipsis. More precisely, I propose that the material internal to the relative clause argued for in the previous section is an elided copy of the material in the external position.

To exemplify the proposal look at (38). The relative clause in (38a), I propose, receives the matching analysis in (38b): A silent copy of the head *book* is the complement of the relative clause operator *which* as shown in (38b). At LF, therefore this copy is represented in the relative clause internal trace position.

(38) a. the book which Susi likes
b. the $\underbrace{\text{book}}_{\text{antecedent}}$ which $\underbrace{\langle\text{book}\rangle}_{\text{elided NP}}$ Susi likes *t*

The ellipsis process hypothesized is quite different from VP-ellipsis. One respect in which it's different is that ellipsis of the NP in (38) is obligatory, while VP-ellipsis is an optional process. A second difference is that the antecedent of the silent internal head in (38) must be the external head of the relative clause. For VP-ellipsis sites, however, any other VP in the discourse can serve as the antecedent.

While the hypothesized ellipsis differs substantially from VP-ellipsis, there is another ellipsis process that behaves very much like the ellipsis postulated in (38): Comparative Deletion. Bresnan (1973, 1975) and Lechner (1999) argue that comparative clauses involve obligatory deletion of the AP or NP containing the trace of the comparative operator degree-variable trace. Consider for examples the comparative clause in (39): according to Bresnan's proposal the subject position of the *than*-clause in (39) is occupied by a silent copy of the NP *a long whale*. However, this silent copy cannot be pronounced in (39). Hence, comparative deletion is obligatory exactly like the hypothesized ellipsis in (38).

(39) Ahab saw a longer whale than (*a long whale) was ever seen.

Furthermore, Williams (1977:102) and Kennedy (1997b) shows that, in (40), the antecedent of comparative deletion must be the phrase that is the sister of the comparative operator Op_d. Hence, an interpretation of the comparative deletion site as *wide* isn't available in (40). Again, comparative deletion behaves exactly like the ellipsis postulated in (38).

(40) The table is wider than this rug is, but this rug is longer Op_d than the desk is $\langle d$, long$\rangle$/*$\langle d$, wide$\rangle$ (Kennedy 1997b:154)

I introduce therefore the term *Relative Deletion* to refer to the process that renders the internal head of matching relatives unpronounceable.

(41) **Relative Deletion:** In matching relatives, the internal head must not be pronounced. Furthermore, the external head must be antecedent of the internal head.

Lechner (1999) develops an interesting proposal to account for comparative deletion. His idea is that it involves movement without chain formation. As far as I can see, his proposal can also be adopted to relative deletion, but I leave this for future research.

3.2 Vehicle Change

In this section, I show that the proposed relative deletion solves the problem noted at the end of section (37). To recall the problem, consider (42). (42) shows the apparent conflict between the Condition C evidence and the crossover evidence above. The motivation of the matching analysis was to explain the absence of Condition C effects in examples

like (42a), but in section (37) I argued that the matching analysis must then be modified to account for the appearance of strong crossover effects as in (42). To explain (42b), I proposed that the head of the relative clause is in fact represented in the relative clause internal position in matching relatives. This seems to predict that (42a) should violate Condition C.

(42) a. Pictures of John$_i$ which he$_i$ displays prominently are likely to be attractive ones.
b. *Pictures of anyone$_i$ which he$_i$ displays prominently are likely to be attractive ones.

In fact, though, the contrast in (43) is predicted by the proposal that the internal head is an elided copy of the external head. The reason is that ellipsis processes have been argued by Fiengo and May (1994) to allow what they call *vehicle change*. Specifically, Fiengo and May (1994) argue that an R-expression or wh-trace in the antecedent of ellipsis can correspond to a pronoun in the elided material. One piece of evidence for this proposal are data like (43). In (43a) and (43b), the antecedent of the elided VP contains an R-expression. However, only (43a) doesn't allow coreference between the pronominal subject of the elided VP and this R-expression.

(43) a. *John likes Mary$_i$ and she$_i$ does ⟨like her$_i$⟩, too.
b. John likes the story about Mary$_i$ and she$_i$ knows he does ⟨like the story about her$_i$⟩.

The difference between (43a) and (43b) is how deeply embedded the R-expression is in the antecedent VP. Fiengo and May (1994) argue that Condition B rather than Condition C determines the possibility of coreference in (44). This follows if the R-expression in the antecedent can correspond to a pronominal in the elided VP. The kind of correspondence relation, Fiengo and May (1994) refer to as vehicle change.

I show now that vehicle change is at work in comparative and relative deletion as well, and explains the problem mentioned above. The presence of vehicle change corroborates the proposal that ellipsis of the internal head takes place in matching relatives.

Consider first the contrast in (44). It shows that vehicle change is observed with comparative deletion. Again, both (44a) and (44b), contain an R-expression in the antecedent of the ellipsis: the comparative AP and a coreferent pronoun c-commands the ellipsis site. In (44a) where coreference between the pronoun *he* and the position of the R-expression in the ellipsis is blocked by Condition B and C, coreference is in fact blocked. In (44b), however, where Condition B is not violated, coreference is possible. This is exactly the pattern predicted by vehicle change.

(44) a. *Mary is more proud of John$_i$ than he$_i$ is ⟨proud of John$_i$/him$_i$⟩. (Lechner 1999)
b. Mary is more proud of John$_i$ than he$_i$ thinks she is ⟨proud of John$_i$/him$_i$⟩.

To explain the absence of Condition C effects in matching relatives, I propose that vehicle change of an NP to an NP-anaphor is also possible. Consider (45) under this assumption. If the internal head of the matching relative clause is a *one*-anaphor referring to the predicate *picture of John* is possible as indicated in (45b), no violation of Condition C is expected.

(45) a. pictures of John$_i$ which he$_i$ displays prominently
b. [picture of John$_i$]$_j$ λx which he$_i$ displays [x, one$_j$]

Now consider the crossover example of Safir's (1998) in (46a). In this example, vehicle change to a *one*-anaphor is blocked, because the external head contains a variable, and therefore there is no constant relation a *one*-anaphor could refer to that's coreferent with the NP *pictures of x*. Hence, in (46a) vehicle change of the entire NP to a *one*-anaphor is blocked.

(46) a. *pictures of anyone$_i$ which he$_i$ displays prominently
b. *anyone λx $\Big[$pictures of [x] [which] λy he$_x$ displays prominently [y, picture of [x]]$\Big]$

However, vehicle change of the trace [x] to a pronoun is predicted to be possible in (47). This would not change the status of (46a), however, since the resulting representation would still violate Condition B as shown by (47), even though Condition C wouldn't be violated.

(47) *John$_i$ displays a picture of him$_i$

However, the possibility of this vehicle change predicts that if the trace is more deeply embedded in the antecedent, such that Condition B isn't violated, the example should become grammatical. The contrast (48) shows that the crossover effect triggered by the internal head exhibits the locality of Condition B. While (48a) doesn't allow *every boy* to bind *he*, binding is possible in (48b), where the quantifier *every boy* is more deeply embedded in the head of the relative clause.

(48) a. *Mary exhibited the picture of every boy$_i$ that he$_i$ bought.
b. Mary exhibited the picture of every boy$_i$'s mother that he$_i$ bought.

Note that the locality restriction exhibited in (48) exactly matches Condition B: While coreference of subject and the pronoun *him* is impossible in (49a), it's allowed in (49b).

(49) a. *John$_i$ bought a picture of him$_i$.
b. John$_i$ bought a picture of his$_i$ mother.

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